SONY

3-757-140-21(1)

Chapter 1
Introduction

Chapter 2
Preparation

Chapter 3
Basic Operations

Chapter 4
Advanced Operations

Chapter 5
Editing

Chapter 6
Additional Information

EV-C100

Video Cassette Recorder

Operating Instructions

Before operating the unit, please read this manual thoroughly and retain it for future reference.

video Hi8

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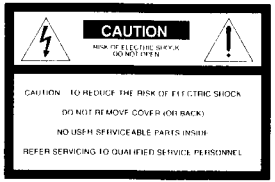
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED AC PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate his equipment.

Note
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separaion between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the deaster or and experienced radeo/TV technician for help.

Caution
Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of copyright laws. Also, use of this recorder with cable television transmission may require authorization from the cable television transmitter and/or program owner.

For the customers in Canada
This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

Owner's Record

The model number is located at the front and rear panel, and serial number is located on the top. Record the serial number in the space provided on the right. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No. EV-C100

Serial No. _____

Welcome!

Congratulations on your purchase of the Sony EV-C100 Video Cassette Recorder.
This Video Cassette Recorder is the result of our commitment to bring Sony customers high quality and state-of-the-art technology.
Thank you for choosing Sony.

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Precautions

Safety

- Operate the unit only on 120 V AC, 60 Hz.
- If anything falls into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- One blade of the plug is wider than the other for the purposes of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.
- Unplug the unit from the wall outlet if you do not intend to use it for an extended period of time. To disconnect the cord, pull it out by the plug, never by the cord itself.

Installation

- Allow adequate air circulation to prevent internal heat buildup.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Do not install the unit near heat sources such as radiators or air ducts, or in a places subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Do not install the unit in an inclined position. It is designed to be operated in a horizontal position only.
- Keep the unit and cassettes away from equipment with strong magnets, such as microwave ovens or large loudspeakers.
- Keep the unit away from a TV. Otherwise, it may cause interference with the TV.
- Do not place heavy objects on the unit.

Operation

- When the unit is not in use, turn the power off to conserve energy and to extend its life.
- Remove and store video cassettes after recording or playback.

Cleaning

- Clean the cabinet, panel and controls with a dry, soft cloth, or a soft cloth slightly moistened with a mild detergent solution.
- Do not use any type of solvent, such as alcohol or benzine.

Recording and Playback

- This VCR uses 8 mm video format cassettes.
- This VCR can play back and record in the Hi8 video system or the standard 8mm video system.
- This VCR can record in SP mode only.
- The AFM Hi-Fi stereo feature is available on this VCR.
- The PCM audio recording and playback are not available on this VCR.
- You can neither record in the digital multi system nor play back a tape recorded in the digital multi system on other VCRs.

Features

High quality picture and sound

- **Hi8 video system**
  The Hi8 video format features 400 lines of horizontal resolution, giving you a high video quality.
- **AFM Hi-Fi stereo**
  You can record Hi-Fi sound with a live stereo sound atmosphere.

Editing

- **DUAL MODE SHUTTLE ring**
  Allows quick access to the desired scene and playback at various speeds in both forward and reverse directions.
- **Synchronized editing**
  Controls two VCRs (recording VCR and playback VCR) connected with either control L (LANC) or control S connection at a press of one button.
- **Control L (LANC) connector**
  Allows connection with other video equipment such as a camcorder easily.
  Furthermore, simultaneous control of both equipment is available for bi-directional synchronized editing.
- **CONTROL S INPUT connector**
  Allows remote control of this VCR by other Sony video equipment with a CONTROL S OUTPUT jack.
- **S VIDEO IN/OUT connector**
  Allows clear picture by separating color signal from luminance signal.

Function

Voice boost function
When playing back a tape recorded with a video camera recorder (camcorder), voice boost enhances the voice portion of the sound and reduces unwanted background noise like wind so that it's easier to listen to conversation.

Note

No TV or cable reception
Since no tuner is built in this VCR, you cannot record a TV or cable program through the RF (VHF/UHF IN and OUT) connection.

How to Use This Manual

This manual is divided into the following six chapters: **Chapter 1** Introduction, **Chapter 2** Preparation, **Chapter 3** Basic Operations, **Chapter 4** Advanced Operations, **Chapter 5** Editing, and **Chapter 6** Additional Information.
If you are already familiar with basic operations, skip **Chapter 3** Basic Operations and see **Chapter 4** Advanced Operations.
If you have any problems in installing or operating the EV-C100, refer to the troubleshooting section (see page 41) first before calling your local Sony dealer.

When you are reading through the manual, remember:
- Buttons and switches on the VCR to be used in operating the VCR are called out and shown in uppercase letters in the illustrations.
- Buttons and switches on the Remote Commander to be used for operating the VCR are called out and enlarged in the illustrations.

Conventions

This indicates a function operated only with the buttons on the VCR itself, but not with those on the Remote Commander.

This indicates a function operated only with the buttons on the Remote Commander, but not with those on the VCR itself.

Unpacking

Unpack all the items and check to confirm that you have everything listed below.
- Remote Commander RMT-V124B (1)
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)
- Audio/video connecting cable (3 phono to 3 phono) (1)
- S VIDEO connecting cable (1)

Hookups and Getting Started

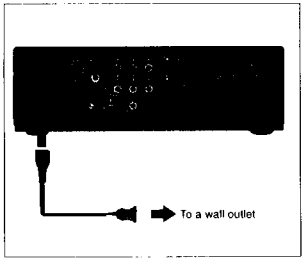
Before you can use your VCR for the first time, you need to connect it to your TV and set it up to play back video programs for viewing. This section explains how to hook up, set up, and operate your VCR so that you can start enjoying it right away. There are, however, many types of TVs available and many different ways in which your TV can be hooked up. As a result, this manual describes several ways your VCR can be connected.

Use the following table to select the correct hookup for your TV.

When	See
Your TV has audio/video (A/V) inputs	**Hookup 1** Audio/Video (A/V) Hookup (page 7)
Your TV doesn't have audio/video (A/V) inputs	**Hookup 2** Antenna Hookup (page 8)
You have a cable TV	**Hookup 3** Cable Hookup (page 10)

After you've completed the connections, follow the instructions for setup. (During setup, if you need more details of the procedures described, page numbers are provided where you can find complete, step-by-step instructions.)
After you've completed the setup, you're ready to use your VCR. Follow the instructions provided in "To Watch TV" and "To Watch the VCR," for your specific hookup. (Again, if you need step-by-step instructions, page numbers are provided where you can find these instructions.)

Before making connections, check the following points:
- Turn off the power to the VCR and TV.
- Do not connect the AC power cord until all of the connections are completed.

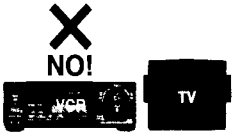


- Make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, consult your nearest Sony dealer or qualified technician.

Caution
Connections between the VHF/UHF OUT connector on the VCR and the antenna terminals of a TV receiver should be made only as shown in the instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the recorder to an antenna or make simultaneous (parallel) antenna and recorder connections at the antenna terminals of your receiver.

NOTE TO CATV SYSTEM INSTALLER IN THE U.S.A.
This reminder is provided to call the cable TV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Caution
Do not place the VCR near a TV. The playback picture may become distorted.

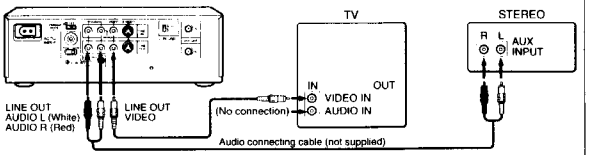


Hookup 1

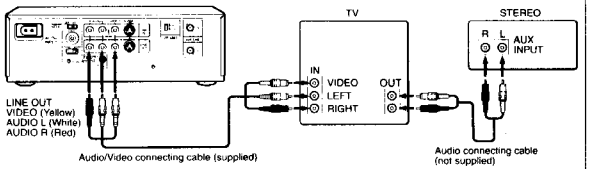
Audio/Video (A/V) Hookup

If your TV has audio/video (A/V) input jacks, you will get a better picture and sound if you hook up your VCR using these connections. If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookup.
If you only wish to play back movies, you're finished after you've made these connections.

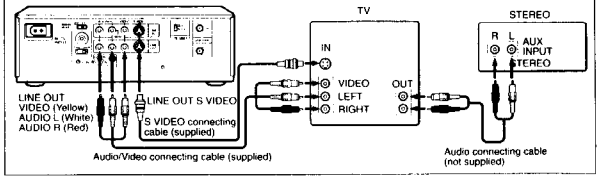
1A If your TV is a monaural type



1B If your TV is a stereo type and does not have an S VIDEO connector



1C If your TV is a stereo type and has an S VIDEO connector



After you've hooked up your TV using the A/V connections, use the procedure described on page 9 to set up and use the VCR with your TV.

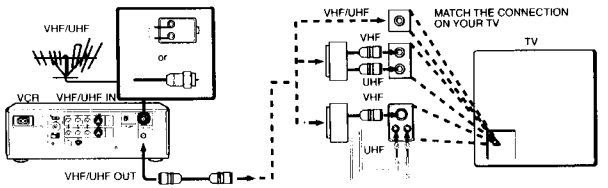
Note on connections
Note that cord plugs and jacks are color coded.
Red plugs and jacks are for the right audio channel, white ones are for the left audio channel and yellow ones are for video signals.

Hookup 2

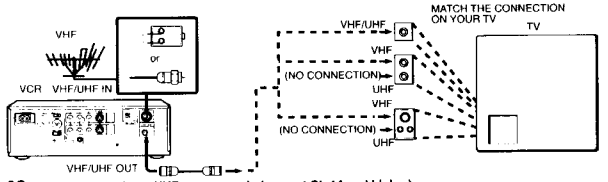
Antenna Hookup

Make the following connections if you're using an antenna (not a cable TV). Check the type of antenna you are using and choose the appropriate connection. These connections, however, do not allow you to record a TV program through the antenna since this VCR does not have a built-in tuner. (If your TV has A/V output jacks, you can record a TV program. See "Recording TV or Cable Programs" on page 16.)

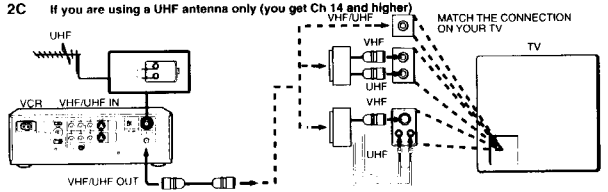
2A If you are using a VHF/UHF antenna (you get Ch 2-13, and Ch 14 and higher)



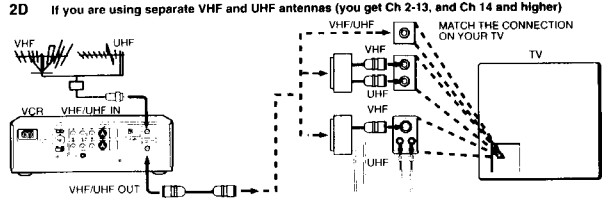
2B If you are using a VHF antenna only (you get Ch 2-13)



2C If you are using a UHF antenna only (you get Ch 14 and higher)



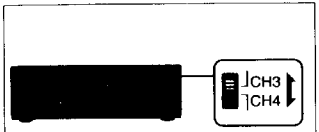
2D If you are using separate VHF and UHF antennas (you get Ch 2-13, and Ch 14 and higher)



Details are on pages 39 and 40.

VCR Setup (Antenna)

Set the RF UNIT selector on the VCR's rear panel to CH3 or CH4.
If you have made A/V connections, skip this adjustment.



Set to whichever channel not used in your area.
If both are used, pick either channel.

To Watch the VCR

1 Tune the TV to Ch 3 or Ch 4, whichever you have set on the back of the VCR. (If you have made A/V connections on page 7, set your TV to the A/V input instead.)

2 Insert a cassette and press ▶ PLAY.

3 If there's no picture on your TV, press the VCR's TV/VTR button on the Remote Commander until the VTR indicator on the VCR lights up.

Details are on page 13.

To Watch TV

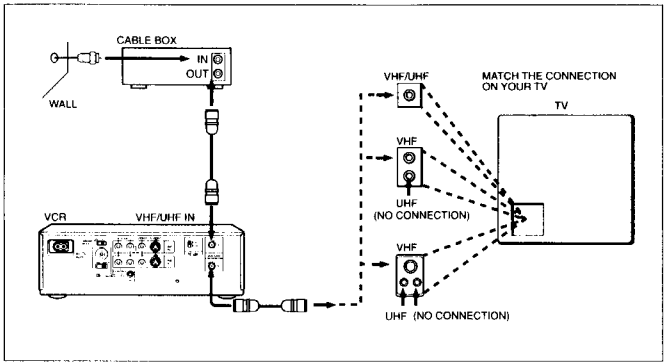
1 Turn your VCR off, or press the VCR's TV/VTR button on the Remote Commander until the VTR indicator on the VCR goes off.

2 Tune the TV normally.

Hookup 3

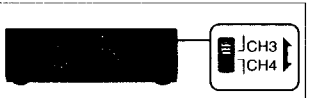
Cable Hookup

This connection does not allow you to record a cable program since this VCR does not have a butil-in tuner. (However, if your TV has A/V line output jacks, you can record a cable program. See "Recording TV or Cable Programs" on page 16.)



VCR Setup

Set the RF UNIT selector on the VCR's rear panel to CH3 or CH4.
If you have made A/V connections, skip this adjustment.



Set to whichever channel not used in your area. If both are used, pick either channel.

To Watch the VCR

1 Tune the TV to Ch 3 or Ch 4, whichever you have set on the back of the VCR. (If you have made A/V connections on page 7, set your TV to the A/V input instead.)

2 Insert a cassette and press ▶ PLAY.

3 If there's no picture on your TV, press the VCR's TV/VTR button on the Remote Commander until the VTR indicator on the VCR lights up.

Details are on page 13.

To Watch TV

1 Turn your VCR off, or press the VCR's TV/VTR button on the Remote Commander until the VTR indicator on the VCR goes off.

2 Switch on your cable box.

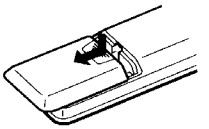
3 Tune the TV to the cable box output channel (usually 2, 3, or 4).

4 Select the channel that you want to watch with your cable box.

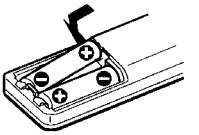
Preparing the Remote Commander

Inserting Batteries

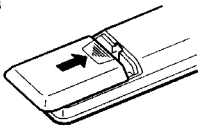
1



2



3



1 Open the lid.

2 Insert two size AA (IEC designation R6) batteries by matching the + and – on the batteries to the + and – indications in the battery compartment.

3 Close the lid.

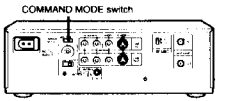
To operate this VCR with the Remote Commander
Make sure that the COMMANDE MODE switch on the rear of the VCR is set to 2. (Upon shipment, it is set to 2.)

Notes on the handling of batteries
- With normal use, the batteries should last for approximately six months.
- If you do not use the Remote Commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery together with an old one. Do not use different types of batteries.

Controlling Other Sony Video Equipment

You can control other Sony video equipment having the Command Mode, using this Remote Commander.
Set the Command Mode selector for the other equipment to VTR2.

If other Sony video equipment does not have the command mode selector
You can control an 8 mm format VCR only. You cannot use this Remote Commander with a Betamax VCR or a VHS format VCR.



Note
- This VCR has a COMMAND MODE switch (OFF/1/2/3) on the rear panel. When the COMMAND MODE switch is set to OFF, you can no longer control this VCR with any Remote Commander.

Playback

This section shows you how to play back a video cassette.

Inserting a Video Cassette

1 Insert a video cassette with the window facing up.

2 Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.

When the cassette has been inserted, the cassette indicator lights up in the display window and the VCR turns on automatically.

Ejecting the Video Cassette

Press ⏏ EJECT on the VCR. You can eject the cassette when the power is off. When you press ⏏ EJECT, the power is turned on. After ejecting the cassette, the power automatically shuts off.

Note
You cannot eject a cassette during recording or recording pause mode.

Cassette Care

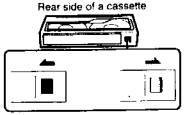
Notes
- Always insert the cassette in the correct position.
- Never insert anything in the small holes on the rear of the cassette.
- Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.
- To record from the beginning of the tape, run the VCR for about 15 seconds at the beginning of a cassette before recording.
- When the VCR is not in use, remove the cassette.
- Stick the cassette label in the designated area.
- Stick the label on securely so it will not peel off and damage the VCR.

Maximum recording time of a cassette

Cassette used	Recording/Playback Time (SP mode)	Playback Time (LP mode)
E6/P6-30	30 min	1h
E6/P6-60	1h	2h
P6-90	1h 30 min	3h
E6/P6-120	2h	4h
P6-150	2h 30 min	5h

This VCR automatically detects the type of the tape speed mode (SP or LP) in which the tape has been recorded, and plays it back accordingly.
The picture quality recorded in the LP mode is inferior to one recorded in the SP mode.

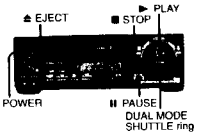
Rear side of a cassette



Protecting a recording against accidental erasure

To prevent accidental erasure, slide out the tab on the back of the cassette so that the red color is visible.

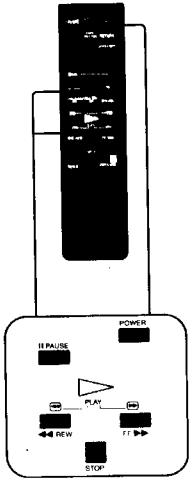
To re-record on the cassette, slide the tab back.



Playing Back a Cassette

You can control playback with the identically marked buttons on either the VCR or the Remote Commander.

The VCR automatically detects the type of video system the tape was recorded in (Hi8 or standard video system, SP mode or LP mode) and plays it back accordingly. When a tape recorded in the Hi8 video sysytem is played, the Hi8 lamp on the front panel lights up.



1 Insert a cassette.
The VCR turns on automatically.

2 Turn on the TV.
If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.
If your TV is connected only to VHF/UHF OUT on the VCR, select the preset channel for the VCR (Ch 3 or Ch 4).

3 Press ▶ PLAY.

To stop playback
Press ■ STOP.

To stop playback for a moment
Press II PAUSE.
Press II PAUSE again or press ▶ PLAY to resume playback.

To advance the tape rapidly without viewing pictures (fast forward mode)
VCR: Press ■ STOP, then turn the DUAL MODE SHUTTLE ring clockwise.
Remote Commander: Press ■ STOP, then ▶▶ FF.

To rewind the tape without viewing pictures (rewind mode)
VCR: Press ■ STOP, then turn the DUAL MODE SHUTTLE ring counterclockwise.
Remote Commander: Press ■ STOP, then ◀◀ REW.

You can view pictures momentarily while the VCR is in fast forward or rewind mode.
VCR: Turn the DUAL MODE SHUTTLE ring clockwise in fast forward mode, or counterclockwise in rewind mode. Then release the ring to return to fast forward or rewind mode.
Remote Commander: Press and hold ▶▶ FF in fast forward mode, or press and hold ◀◀ REW in rewind mode. Then release the button to return to fast forward or rewind mode.

To eject the cassette
Press ⏏ EJECT on the VCR.
Pressing ⏏ EJECT when the VCR is turned off will turn the VCR on, eject the cassette and then turn it off again.

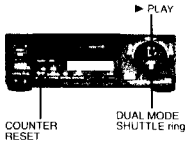
When the tape reaches the end during playback
The VCR automatically rewinds the tape to the beginning and the power remains on.

To turn the VCR on or off
Press POWER.

Never unplug the AC power cord while a tape is moving
This may cause the tape to be jammed in the VCR. When you need to unplug the power cord, be sure to remove the cassette or turn off the power of the VCR.

Note
- When you play back a cassette recorded SAP broadcast, you can not hear the main sound but the SAP sound.

Auto Play

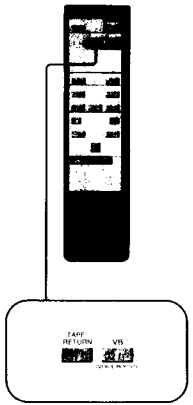


You can start playback automatically after rewinding a cassette.
This operation works only on the VCR. (You cannot use AUTO PLAY with the Remote Commander.)
Press ► PLAY while fully turning the DUAL MODE SHUTTLE ring counterclockwise.
Playback starts automatically after the tape is rewound to the beginning of the tape.

Indexing the Tape Contents

Before playing back or recording, press COUNTER RESET to reset the counter to zero. This counter is a "linear time counter," which shows you how much the tape has run in terms of time. By noting the setting, you can find that point later by referring to the counter. Use the label on a cassette to list the programs and their counter readings. Since the counter is not particularly accurate, use it only for reference.

Locating a Particular Scene Later



If you want to return to a particular scene later, press COUNTER RESET at the desired scene so that the linear time counter is set to "0H00M00S."

To return to the desired scene
Press TAPE RETURN on the Remote Commander while the VCR is in stop mode.
The tape rewinds to the position where the counter reads "0H00M00S", and stops.

To start playback of the scene
Press ► PLAY.

Listening More Easily to Conversation Recorded with a Camcorder

When you press VB (VOICE BOOST) while playing back a tape recorded with a camcorder, the human voice portion of the sound is enhanced so that it is easier to hear conversation. This reduces the sound of wind and other unwanted background noise.

Notes on counter reading
- The counter does not work on unrecorded portions of a tape.
- After a cassette is ejected, the counter reading is retained. When a cassette is inserted in the VCR, the counter reading automatically returns to "0H00M00S."
- The linear time counter installed in this VCR is not a clock. There is a difference between the actual recording and playback time, and the counter display.

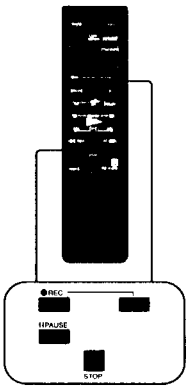
Recording

This section shows you how to record a video program from other equipment having A/V output jacks such as a camcorder.
You can record in the Hi8 video system or the standard 8mm video system.

To select the recording system
When you intend to record the Hi8 cassette in Hi8 mode, select the Hi8 setting to AUTO with the Hi8 (AUTO/OFF) button.
When you intend to record the Hi8 cassette in standard 8mm mode, select the Hi8 setting to OFF with the Hi8 (AUTO/OFF) button.

Video tape used	Hi8 setting with Hi8 button	Recording system	Hi8 indicator
Hi8 video tape	ON	Hi8 video system	Lit
	OFF	Standard 8mm video system	
Standard 8mm video tape	ON	Standard 8mm video system	Unlit
	OFF	Standard 8mm video system	

You can make Hi8 and standard 8mm recording on the Hi8 video tape. The Hi8 recording is performed only on the Hi8 video tape. The Hi8 lamp of the front panel lights up when the Hi8 recording is made.



Notes
- Use the supplied S VIDEO connecting cable to obtain Hi8 picture quality fully during recording.
- It is not necessary to turn on the TV if you do not watch a video program while recording it. Skip steps 2, 3, and 4.
- This VCR can record a cassette in SP mode only, not in LP mode.
- When you use the LINE IN VIDEO jack and LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.

When the cassette reaches the end
The cassette rewinds to the beginning and the power stays on.

Before You Begin

Check the following points:

- Make sure that the connections have been made correctly (see pages 6-10).
- Make sure the cassette is long enough to record the source program.
- Make sure the safety tab of the cassette has not been slid out. If you insert a cassette with the safety tab visible in red (closed) and press ● REC, the cassette automatically ejects from the VCR.

Recording a Video Program while Watching It

1 Insert a cassette.
The VCR turns on automatically.

2 Turn on the TV.

3 If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.
If your TV is connected only to VHF/UHF OUT on the VCR, select the preset channel for the VCR (Ch 3 or Ch 4).

4 If your TV is connected only to VHF/UHF OUT, then press TV/VTR on the Remote Commander so that the VTR indicator lights up.
Skip this step if your VCR is connected to both VHF/UHF OUT and LINE OUT.

5 Press both ● RECs on the Remote Commander at the same time, or ● REC on the VCR.
The REC indicator on the VCR lights up.

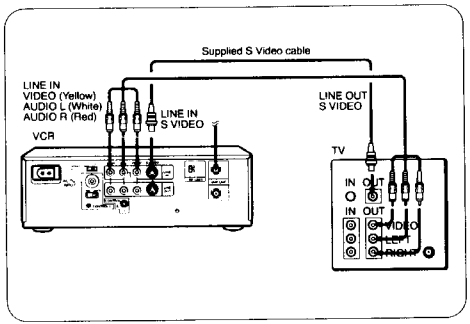
To stop recording
Press ■ STOP.

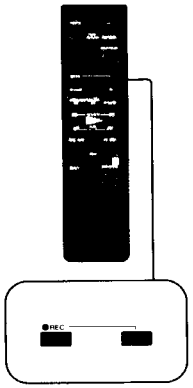
To pause recording
Press II PAUSE.

To resume recording
Press II PAUSE. If the recording pause exceeds 7 minutes, the VCR stops.

Recording TV or Cable Programs

Since the VCR itself does not have a built-in tuner, you cannot record TV or cable programs if you have made a VCR-TV (or Cable-VCR-TV) connection using "Audio/Video (A/V) Hookup" on page 7, "Antenna Hookup" on page 8, or "Cable Hookup" on page 10.
However, if your TV has A/V line output jacks, you can record TV or cable programs using the connection described below.





1 Turn on the TV (and the cable box if you record a cable program) and select a program you want to record on the TV.

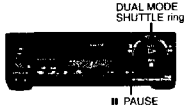
2 Insert a cassette into the VCR.

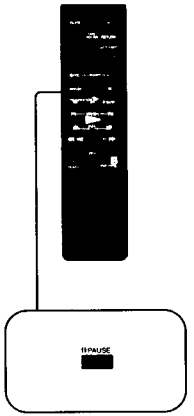
3 Press both ● RECs on the Remote Commander at the same time, or ● REC on the VCR.

You should keep the TV (and the cable box if you record a cable program) on while you are recording TV (or cable) programs.

Note
When you use the LINE IN VIDEO jack and LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.

Pausing





Technique 1
You can stop recording an unwanted scene and resume recording smoothly.

1 Press II PAUSE when an unwanted scene appears.
Recording will stop and the VCR enters recording pause mode.

2 Press II PAUSE when you want re-start recording.
Recording resumes.

Technique 2
When an unwanted scene has already started recording, you can rewind the cassette to the beginnig of the unwanted scene. have the VCR standby in recording pause mode, and resume recording.

1 Press II PAUSE to set the VCR to recording pause mode.

2 Turn the DUAL MODE SHUTTLE ring on the VCR counterclockwise or clockwise to search for the point from which you wish to continue recording.

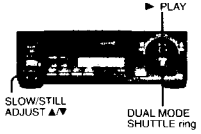
3 Release the DUAL MODE SHUTTLE ring on the VCR at the desired point.
After an instant in still mode, the VCR automatically enters recording pause mode.

4 Press II PAUSE when you want re-start recording.
Recording resumes.

Variable Speed Playback

The following section explains the advanced playback functions available on your VCR.

Using the DUAL MODE SHUTTLE ring on the VCR or ▶▶ FF and ◀◀ REW on the Remote Commander, you can play a cassette at a variety of forward and reverse speeds. You can also freeze a picture using the pause function (see page 17). Variable speed playback of the cassette recorded in LP mode is possible, but not guaranteed.



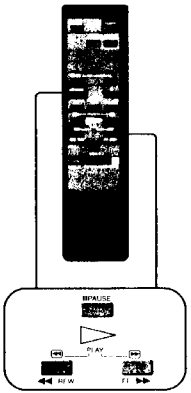
Still Picture

During playback, press ❚❚ PAUSE to hold the picture in one place.

To resume normal playback, press either ▶ PLAY or ❚❚ PAUSE.
If you leave your VCR in pause mode, normal playback resumes after approximately 7 minutes.

The sound is not heard during still picture playback.

If a still picture shakes up and down or has streaks, you can adjust it by pressing SLOW/STILL ADJUST ▼ or ▲ on the VCR. (See "Tracking Adjustment" on page 20.)



Picture Search

VCR: During playback, turn the DUAL MODE SHUTTLE ring clockwise or counterclockwise.
When you release the ring, normal playback resumes.

Remote Commander: During playback, press ▶▶ FF or ◀◀ REW.
When you release the button, normal playback resumes.

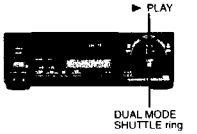
Locked Picture Search

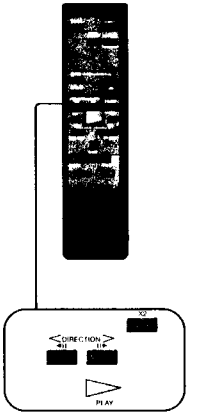
This feature works only when using the Remote Commander.
Press ⏩ or ⏪ SEARCH on the Remote Commander during playback or playback pause. If you press ⏩ SEARCH, the VCR enters locked picture search mode in the forward direction. If you press ⏪ SEARCH button, the VCR enters locked picture search mode in the reverse direction.

To resume normal playback
Press ▶ PLAY.

Notes
- When viewing the picture in variable speed playback modes, the picture may shake vertically or the color may become black and white, depending upon the TV you are using.
- During variable speed playback, several streaks will appear on the TV screen. This is normal. A wider streak will appear during picture search if the tape was recorded in LP mode.
- If you perform picture search with the VCR connected to your TV via VHF/UHF OUT, you may hear a slight sound such as a buzzing sound.

x 2 (Double), –x 2 (Reverse Double) Speed Playback





VCR:
Slowly turn the DUAL MODE SHUTTLE ring completely clockwise (in the forward direction) or counterclockwise (in the reverse direction) to view pictures at double normal speed.

To resume normal playback
Release the ring.

Remote Commander:
Press x2.

To play back in the reverse direction
Press < DIRECTION.

To resume the forward direction
Press DIRECTION >.

To resume normal playback
Press ▶ PLAY.

The sound is muted during forward double-speed playback and reverse double-speed playback.

If a x2 (Forward double-speed playback) picture shakes up and down or has streaks, you can adjust it by pressing SLOW/STILL ADJUST ▼ or ▲ on the VCR. (See "Tracking Adjustment" on page 20.)

–x 1 (Reverse Normal) Speed Playback

VCR:
Gently turn the DUAL MODE SHUTTLE ring counterclockwise until the VCR enters reverse slow motion playback mode. After a slow motion picture appears on the TV screen, you can view a –x1 (reverse) playback picture. Hold the DUAL MODE SHUTTLE ring at that point.

Remote Commander:
Press < DIRECTION.

The sound is muted during reverse playback.

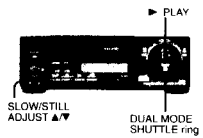
Notes
- It takes about two or three seconds to reverse the direction in slow motion mode or frame-by-frame mode.
- When the tape speed is switched, noise appears a moment.
- If a tape has been recorded in both SP and LP modes, the VCR will automatically adjust to each mode. However, the tape speed cannot be changed during reverse/forward slow motion playback and reverse/forward double speed playback even though the tape speed is actually switched from SP to LP or LP to SP.

Frame-by-Frame Picture

During playback pause, press DIRECTION > to advance the picture one frame or < DIRECTION to reverse the picture one frame.
Each time you press the button, the picture moves one frame.

To resume normal playback
Press ▶ PLAY.

Slow Motion Playback



VCR:
Slowly turn the DUAL MODE SHUTTLE ring clockwise (in the forward direction) or counterclockwise (in the reverse direction).

To return to normal playback
Release the ring.

Remote Commander:
Press ▮► SLOW.

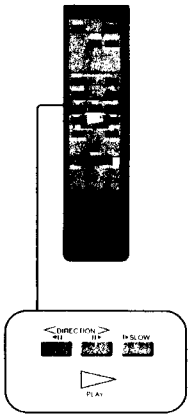
To play back in the reverse direction
Press < DIRECTION.

To resume the forward direction
Press DIRECTION >.

To return to normal playback
Press ► PLAY.

The sound is muted during reverse slow motion playback.
If you leave the VCR in slow motion mode for more than 30 seconds, the VCR will automatically return to normal playback.

If a slow motion picture shakes up and down or has streaks, you can adjust it by pressing SLOW/STILL ADJUST ▼ or ▲ on the VCR. (See "Tracking Adjustment" below.)



Tracking Adjustment

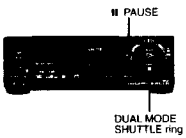
If the picture shakes up and down or has streaks during still picture, slow motion, and x2 (forward double-speed) playback, you can adjust it by pressing SLOW/STILL ADJUST ▼ or ▲ on the VCR.
However, the adjustment cannot be performed while you are turning the DUAL MODE SHUTTLE ring. Use the Remote Commander, therefore, for operating still picture and slow motion playback.

Press and hold SLOW/STILL ADJUST ▼ or ▲ on the VCR until you obtain the best possible picture on the TV screen.

Note
It is necessary to adjust tracking for both SP and LP modes.

Cutting out the Unwanted Scenes – SHUTTLE EDIT

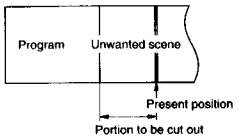
During Recording



If you wish to cut out an unwanted scene, you can pause recording and rewind the tape until the beginning of the unwanted scene is reached. You can then record over it. This feature is controlled using the DUAL MODE SHUTTLE ring on the VCR.

1 Press ▮▮ PAUSE during recording.
The VCR enters recording pause mode.

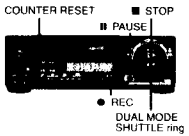
2 Turn the DUAL MODE SHUTTLE ring on the VCR counterclockwise to rewind the tape until the unwanted scene appears.



Turn the ring slightly. During rewinding, the screen changes to the playback picture, but sound is not switched. When you release the ring, the VCR enters recording pause mode.

3 Press ▮▮ PAUSE again to release the pause when a scene you want to cut out appears on the screen.
Recording starts.

During Playback



You can re-record onto an unwanted portion of a pre-recorded cassette using the DUAL MODE SHUTTLE ring on the VCR.

1 Press II PAUSE at the end of the unwanted scene during playback.
The VCR enters playback pause mode.

2 Press COUNTER RESET on the VCR to set the linear counter to "0H00M00S".

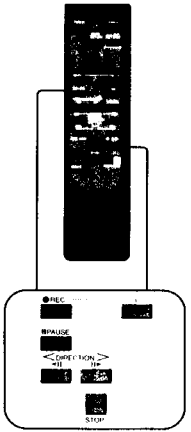
3 Turn the DUAL MODE SHUTTLE ring counterclockwise until the beginning of the unwanted scene appears on the screen.
When you release the ring, the VCR enters playback pause mode.
Use < DIRECTION > on the Remote Commander to rewind or advance the picture frame by frame when searching for more specific points.

4 Press ● REC.
The VCR enters recording pause mode.

5 Select a new program for re-recording.

6 Press II PAUSE again to release the pause when the scene to be recorded begins to appear on the screen.
Recording begins.

7 Press ■ STOP when the linear counter shows "0H00M00S".



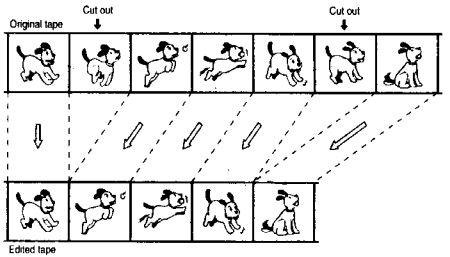
Note
The picture may be distorted a moment at the cut-out point (recording end point).

Overview of the Editing Functions

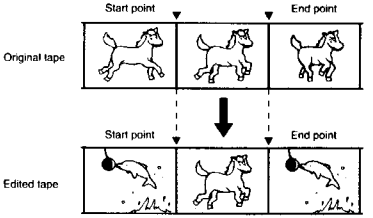
Using a second VCR, you can record programs from one VCR to the other. The following are the tape editing functions available on the VCR.

- **To make a copy of a tape**
  See "Tape Dubbing" on pages 24-26.

- **To edit out unwanted scenes**
  See "Assemble Editing" on pages 27 and 28.



- **To insert another scene into a tape**
  See "Insert Editing" on pages 27 and 29.



- **To edit tapes using the synchronized editing function**
  See "Synchronized Editing" on pages 30-33.

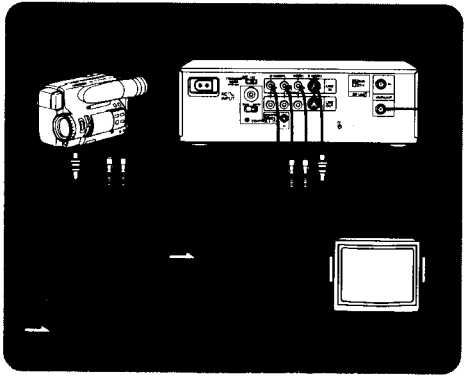
You can also use the synchronized editing function to perform assemble editing and insert editing if your other VCR has a control L (LANC) connector. Using this function controls both the playback VCR and the recording VCR simultaneously from the VCR the LANC mode of which has been set to "M" (see page 31).

Tape Dubbing

Editing from the Other VCR

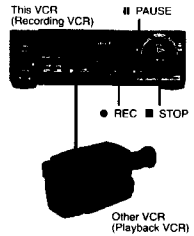
Here's how to edit from another VCR (such as an 8 mm video camera recorder or a VHS-format VCR for playback) when using this VCR for recording.

Connection



Notes

- If your playback VCR is equipped with the S VIDEO output connector, you can use the S VIDEO connecting cable (supplied) to connect the LINE IN S VIDEO connector on the VCR. This connection gives you a higher quality picuter than using the video cable.
- When connecting two VCRs , do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- To avoid deterioration of picture quality, remember to switch on the EDIT function of the other VCR if the EDIT function is provided with that VCR.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN AUDIO L on this VCR and leave the red plug unplugged. This lets you record the sound of the playback VCR on both channels of this VCR. Do not connect the white plug to LINE IN AUDIO R.
- When you use the LINE IN VIDEO jack and LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.



What is the EDIT function?
This function avoids deterioration of picture on the duplicated tape if you activate it when dubbing tapes.

Notes

- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN AUDIO L on this VCR and leave the red plug unplugged. This lets you record the sound of the playback VCR on both channels of this VCR. Do not connect the white plug to LINE IN AUDIO R.

Before You Begin

- Press EDIT on the VCR so that the EDIT indicator lights up.

Note
If the other VCR also has the EDIT function, select it to reduce static and improve reception.

Operation

1 Insert a cassette for recording into this (recording) VCR.

2 Turn on the other (playback) VCR and insert a source cassette.

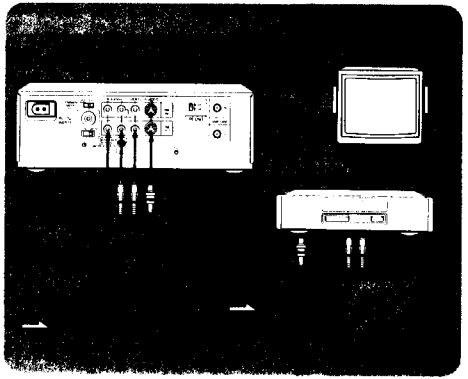
3 Locate the playback start point and select the playback pause mode on the other VCR.

4 Locate the recording start point and select the recording pause mode on this VCR.

5 Press II PAUSE on both VCRs to release the pause.
For best results, press II PAUSE on the other VCR just before pressing II PAUSE on this VCR.
When you've finished editing, press ■ STOP on both VCRs.

Editing onto the Other VCR

Here's how to edit from this VCR (as the playback VCR) onto the other VCR (as the recording VCR).

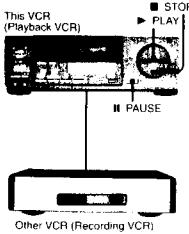


Notes
- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your recording VCR is a monaural unit, make connections using the VMC-910HG/920HG cable (not supplied).
- If your recording VCR is equipped with the S VIDEO input connector, you can use the S VIDEO connecting cable (supplied) to connect to the LINE OUT S VIDEO connector on the VCR.

Before You Begin

Press EDIT on this VCR so that the EDIT indicator lights up.

Note
If the other VCR has the EDIT function, it should also be selected to improve reception.



Operation

1 Turn on the other (recording) VCR and insert a cassette for recording.

2 Insert a source cassette into this (playback) VCR.

3 Locate the playback start point and select playback pause mode on this VCR.

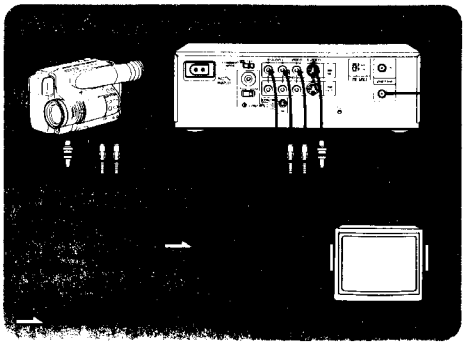
4 Locate the recording start point and select recording pause mode on the other VCR.

5 Press II PAUSE on both VCRs to release the pause.
For best results, press II PAUSE on this VCR just before pressing II PAUSE on the other VCR. When you've finished editing, press ■ STOP on both VCRs.

Assemble Editing/Insert Editing

Using the LANC connector, you can take advantage of the synchronized editing function. For the synchronized editing operation, see pages 30-33.

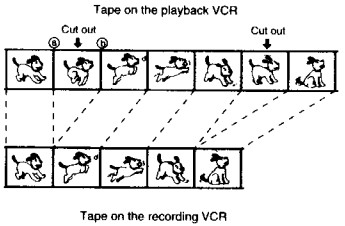
Connection



Notes
- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN AUDIO L on this VCR and leave the red plug unplugged. This lets you record the sound of the playback VCR on both channels of this VCR. Do not connect the white plug of LINE IN AUDIO R.
- To avoid deterioration of picutre quality, remember to swithch on the EDIT function of the other VCR if the EDIT function is provided with that VCR.
- When you use the LINE IN VIDEO jack and the LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.

Assemble Editing

Before You Begin



Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

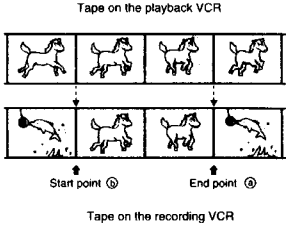
2 Record on this VCR while viewing the playback picture of the other (playback) VCR and have this (recording) VCR enter recording pause mode at the point (point ⓐ) where you want to cut out.

3 Release the recording pause at the point where you want to start recording again (point ⓑ).

4 Repeat steps 2 and 3 to make a newly composed tape.
When you've finished editing, press ■ STOP on both VCRs.

Insert Editing

Before You Begin



Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Locate the editing end point (ⓐ) by playing back the cassette on this (recording) VCR and press COUNTER RESET on this VCR.
The counter reads "0H00M00S".

3 Rewind the tape on this VCR and put the VCR in recording pause mode at the editing start point (ⓑ).

4 Play back on the other VCR and put it in playback pause mode at the point where the picture to be inserted appears on the screen.

5 Release recording pause mode of this VCR and playback pause mode of the other VCR simultaneously.

6 Press ■ STOP on this VCR to stop the recording at the editing end point (counter reading reaches to 0H00M00S) set in step 2.

7 Press ■ STOP on the other VCR to stop the playback.

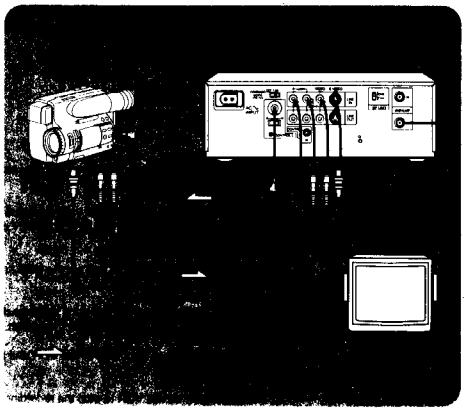
Note
If you play back a tape on which insert editing was performed, the picture may be distorted at the end point of insert editing.

Synchronized Editing

If your other VCR has a control L (LANC) connector, you can take advantage of a feature called "Synchronized Editing" that controls both VCRs (recording VCR and playback VCR), and releases the pause when SYNCHRO EDIT is pressed. To use this function, you must connect a designated control cable (control L or S cable) in addition to the connections of the audio and video cables.

There are two types of control cables: control L (LANC) cable and control S cable depending on the type of connectors of the VCRs.

Connecting Video Equipment with the LANC Connector



Notes

- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may casue a humming noise.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN AUDIO L on this VCR and leave the red plug unplugged. This lets you record the sound of the play back VCR on both channels of this VCR,donot connect the white plug to LINE IN AUDIO R.
- If the other VCR has a LANC connector and a CONTROL S connector, use the LANC connector. Do not make the LANC and CONTROL S connections simultaneously.
- If your playback VCR is equipped with the S VIDEO output connector, you can use the S VIDEO connecting cable (supplied) to connect to the LINE IN S VIDEO connector on the VCR. This connection gives you a higher quality picture than using hte video cable.
- When you use the LINE IN VIDEO jack and LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.

About the (LANC)
LANC stands for Local Application Control System.
The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE on other equipment.

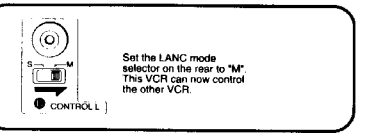
Setting the LANC Mode

When you perform synchronized editing using the control L (LANC) cable, remember to set the LANC mode as described below:
Be sure this setting is correct before you begin editing, since it decides which VCR controls which.

When you want to control this VCR from the other VCR

This VCR

Other VCR

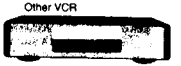


Set the LANC mode selector on the rear to "M". This VCR can now control the other VCR.

Select "S" for LANC mode setting.
For video camera recorders such as the CCD-TR series, the LANC mode must always be set to "S".

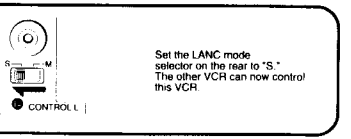
When you want to control this VCR from the other VCR

Other VCR



This VCR

Select "M" for LANC mode setting.
If you cannot set the LANC mode to "M" on the other VCR, you cannot control this VCR from the other VCR. See the instruction manual supplied with the other VCR.

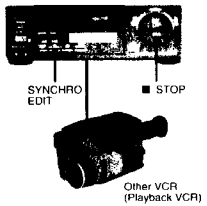


Set the LANC mode selector on the rear to "S." The other VCR can now control this VCR.

Note
Do not make the CONTROL L connection between this VCR and the other VCR with the LANC mode settings of both VCRs set to the same position.

Synchronized Assemble Editing

Before You Begin



- Check the LANC mode setting (see page 31).

Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Locate the recording start point on this VCR and put this VCR in recording pause mode.

3 Locate the beginning of the scene to be edited out on the other VCR and put the other VCR in playback pause mode.

4 Press SYNCHRO EDIT on this VCR. The SYNCHRO EDIT indicator lights up.
Pause mode of both the recording VCR and the playback VCR is released to start editing.

5 Press SYNCHRO EDIT on this VCR at the point where you want to stop recording.
This VCR enters recording pause mode, and the other VCR enters playback pause mode.

6 If you have another scene you want to edit, repeat steps 3 to 5.

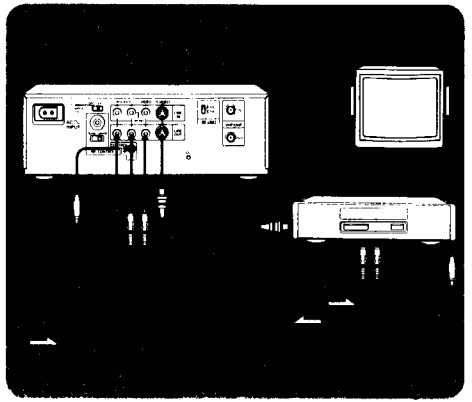
7 After editing has been completed, press ■ STOP on both VCRs.

To make use of the linear counter "0H00M00S"(zero) for synchronized editing
You can perform synchronized insert editing only when this VCR is used as the recording VCR and the LANC mode is set to "M."
When the linear counter on this (recording) VCR becomes zero during synchronized editing, the other (playback) VCR enters playback pause mode and this VCR enters recording pause mode.

During synchronized editing
- The EDIT function is activated automatically.
- If the linear counter becomes zero, syncronized editing stop
- The COUNTER RESET button cannot function.

See the instructions on page 29 for operation.
Follow the operation procedures **1**, **2** and **3** on page 29.
To start editing, press SYNCHRO EDIT on this VCR.
When the linear counter becomes zero, the other VCR enters playback pause mode and this VCR enters recording pause mode.

Connecting Video Equipment with the CONTROL S Connector



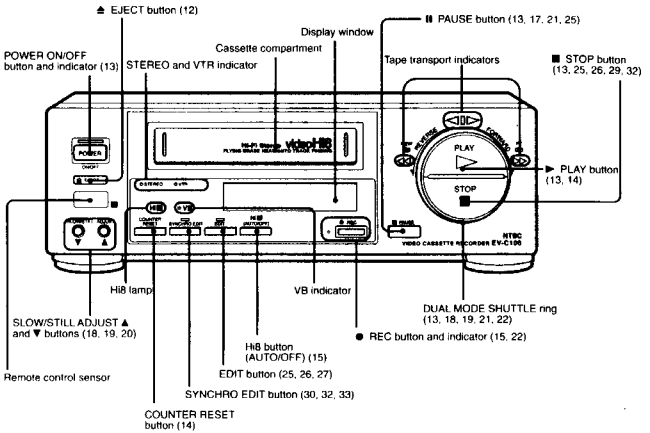
When using the CONTROL S cable
The synchronized editing using the CONTROL S connector is the same as the synchronized editing using the LANC connector. This enables you to pause both VCRs and release pause mode of both VCRs.
You can only perform synchronized editing using the CONTROL S IN connector when the other VCR has the CONTROL S OUT connector.
Set the Command Mode of the other VCR to VTR2.
Press SYNCHRO EDIT on the other VCR having the CONTROL S OUT connector.

Notes
- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your recording VCR is a monaural unit, make connections using the VMC-910HG/920HG cable (not supplied).
- If your recording VCR is equipped with the S VIDEO input connector, you can use the S VIDEO connecting cable (supplied) to connect to the LINE OUT S VIDEO connector on the VCR.

Identifying the Parts and Controls

Front Panel

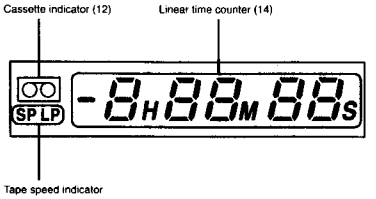
The function of each control is explained on the page indicated in parentheses ( ).


⏏ EJECT button (12)
POWER ON/OFF button and indicator (13)
STEREO and VTR indicator
Display window
Cassette compartment
⏸ PAUSE button (13, 17, 21, 25)
Tape transport indicators
■ STOP button (13, 25, 26, 29, 32)
▶ PLAY button (13, 14)
PLAY
STOP
Hi8 lamp
VB indicator
DUAL MODE SHUTTLE ring (13, 18, 19, 21, 22)
SLOW/STILL ADJUST ▲ and ▼ buttons (18, 19, 20)
● REC button and indicator (15, 22)
Hi8 button (AUTO/OFF) (15)
Remote control sensor
EDIT button (25, 26, 27)
SYNCHRO EDIT button (30, 32, 33)
COUNTER RESET button (14)

◁◁	Rewind	▷▷	Fast forward
◁ ⏸	Play pause (reverse)	⏸ ▷	Play pause (forward)
◁◁ ▷	Picture search (reverse) Locked picture search (reverse)	▷ ▷▷	Picture search (forward) Locked picture search (forward)
◁	x 2 (double speed) playback (reverse) Play (reverse) Slow motion play (revrse)	▷	x 2 (double speed) playback (forward) Play (forward) Slow motion play (forward)
◁ ⏸	Frame-by-frame picture (reverse)	⏸ ▷	Frame-by-frame picture (forward)
◁◁ ▷	Auto play	Indicator lit	Recording

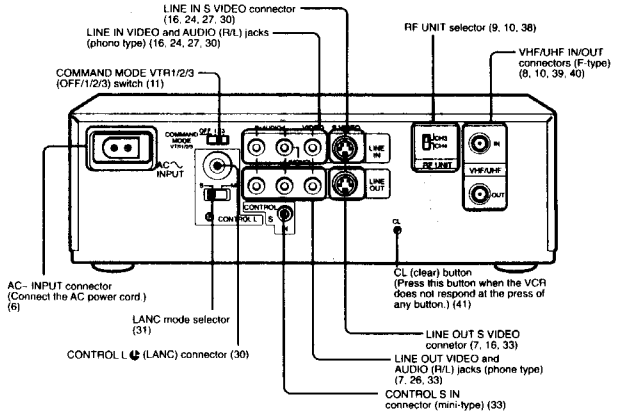
Display Window

Each indicator is explained on the page indicated in parentheses ( ).



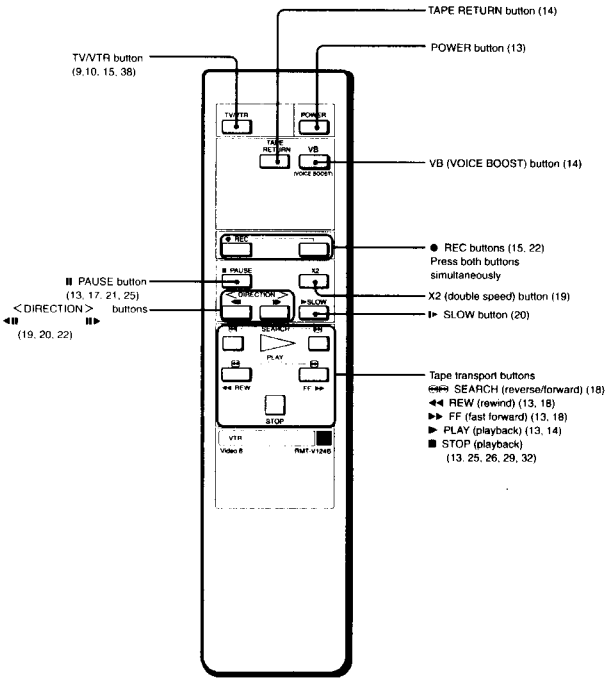
Rear Panel

The function of each control is explained on the page indicated in parentheses ( ).


LINE IN S VIDEO connector (16, 24, 27, 30)
LINE IN VIDEO and AUDIO (R/L) jacks (phono type) (16, 24, 27, 30)
RF UNIT selector (9, 10, 38)
VHF/UHF IN/OUT connectors (F-type) (8, 10, 39, 40)
COMMAND MODE VTR1/2/3 (OFF/1/2/3) switch (11)
AC~ INPUT
AC~ INPUT connector (Connect the AC power cord.) (6)
LANC mode selector (31)
CONTROL L (LANC) connector (30)
CL (clear) button (Press this button when the VCR does not respond at the press of any button.) (41)
LINE OUT S VIDEO connetor (7, 16, 33)
LINE OUT VIDEO and AUDIO (R/L) jacks (phone type) (7, 26, 33)
CONTROL S IN connector (mini-type) (33)

Remote Commander

The function of each control is explained on the page indicated in parentheses ( ).



Technical Information

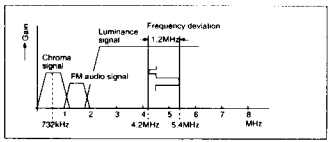
Hi8 (High Eight) Video System

The 8mm video system employs a metal powder tape. This means the video recorder (enhances picture quality) is capable of recording a large amount of information (enhances picture quality). The Hi8 video sytem was developed utilizing the advantages of the 8mm video system. (See the diagrams below.) The main characteristics of the Hi8 video system are as follows:

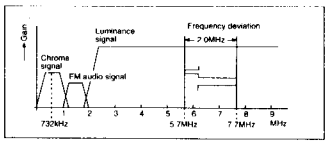
Characteristics of Hi8 System

- **Super high quality picture**
  The information capacity, a key element for picture imporvement is increased by shifting up the FM carrier frequency range. In the Hi8 video system, the FM carrier frequency range of the luminance signal has been shifted up to 5.7-7.7 MHz. This is higher than the 4.2-5.4 MHz range of the standard 8mm video system. Consequently, the horizontal resolution is improved to 400 lines.

Frequency allocation of the standard 8mm video system



Frequency allocation of the Hi8 video system



- **Use of high grade tape to match the Hi8 video system**
  Metal tape for the Hi8 video system is ideal because it has greater magnetism which permits high-density recording. The Hi8 VCR uses such high-grade tapes for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/playback.

- **S VIDEO (separate luminance/chroma signal) input/output connectors**
  Conventionally, the video signal exchanged between the TV set and video equipment or among several video devices is called a composite video signal, in which the luminance (Y) and chroma (C) signals are mixed. In this system the composite video signal is liable to produce interference, resulting in a reduction picture quality. To avoid this quality reduction, an S VIDEO connector is used to transmit and receive the video signal sepearated into the luminance signal and the chroma signal. With the sepearated video signal, flicker and color blur in the picture are minimized and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures excellent editing quality with a minimum loss of picyture quality.

- **Tape speed**
  The Hi8 video systme uses the same tape speed as the standard 8mm video system. An E6-120 (or P6-120) allows four hours of playback in LP mode.

Recording and Playback in the Hi8 Video System

To take advantage of the EV-C100 Hi8 video system, you must use Hi8 video tapes for recording and playback.

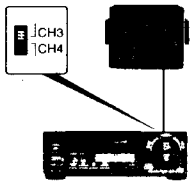
You can use the EV-C100 to record and playback standard 8mm video tapes if Hi8 quality is not necessary. (The Video 8 and standard 8mm systems are often reffered to as "normal " mode.)
The EV-C100 automatically detects the type of video system (standard or Hi8) in which the tape was recorded and plays the tape back accordingly.

To make the most of the Hi8 video system, select the Hi8 setting with the Hi8 (AUTO/OFF) button to AUTO. In this way, EV-C100 records in the Hi8 video system. (See page 15).

Compativility with conventional video recorder decks

Tapes recorded using the Hi8 video system cannot be Played back on conventional 8mm video equipment (standard 8mm video system).

General Setup Information



Setting the RF UNIT Selector

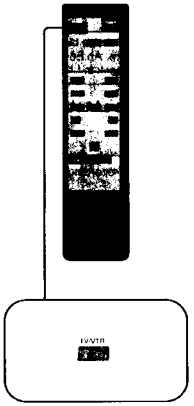
If you connect a TV or color monitor equipped with A/V input jacks, skip this adjustment.

Why this setting is necessary:
You must set the RF UNIT selector at the rear of the VCR properly so that your TV can receive the correct signal from the VCR. Set the selector to CH3 (Channel 3) or CH4 (Channel 4), whichever is not used in your area

1 Set the RF UNIT selector at the rear of the VCR to CH3 or CH4, whichever is not used in your area.

2 Press POWER.
The power indicator on the front panel lights up.

3 Press TV/VTR on the Remote Commander.
The VTR indicator on the VCR lights up.

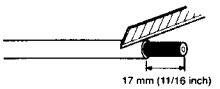


4 Turn on your TV and set it to the channel selected in step 1.
Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to the selected channel.

Note:
For details on adjusting TV channels, see your TV instruction manual.

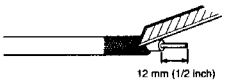
Attaching an F-type Connector (not supplied)

1 Strip 17 mm (11/16") of the black polyvinyl jacket.



2 Fold back the woven wire.

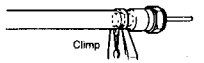
3 Strip 12 mm (1/2") of the white plastic casing, leaving 12 mm of the center conductor.



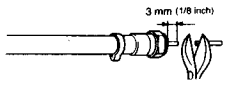
4 Slip the crimping ring over the cable.

5 Insert the inner conductor into the F-type connector shaft and push the end of the cable into the connector as far as it will go.

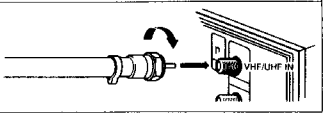
6 Slide the crimping ring over this assembly. Pinch the crimping ring with pliers to hold the connection in place.



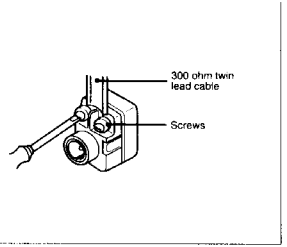
7 Cut the center conductor leaving 3 mm (1/8") from the end.



8 Insert the F-type connector into the VHF/UHF IN connector on the VCR.



Attaching the External Antenna Connector (supplied)

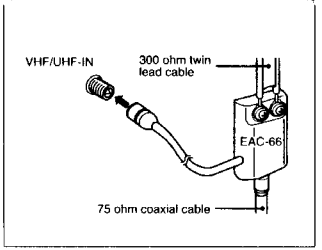


1 Loosen the screws on the antenna connector.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws on the antenna connector.

3 Retighten the screws.

Attaching the EAC-66 U/V Band Separator/Mixer (not supplied)



1 Loosen the screws on the U/V band separator/mixer.

2 Fit the 300-ohm twin lead cable on the UHF antenna under the screws.

3 Righten the screws.

4 Connect the 75-ohm coaxial cable to the U/V band separator/mixer.

5 Connect the U/V band separator/mixer to the VHF/UHF IN connector on the VCR.

Troubleshooting

If you have a problem with your VCR, first check the power cord connection, then go through the following list. Should the difficulty persist, unplug the unit and contact your Sony dealer or local authorized Sony Service Center facility.

	Symptom	Possible causes and remedies
Power	The POWER switch doesn't work.	• The AC power cord is disconnected.
TV Reception	The reception is poor.	• The channel for the VCR is not correctly tuned on the TV. • The VHF/UHF IN or OUT on the VCR are not connected firmly. • The AC power cord of the VCR is disconnected.
Recording and Playback	Shaky and/or snowy picture during recording.	• The TV's channel is not set to the one preset for the VCR.
	No picture on the TV screen.	• Press TV/VTR so that the VTR indicator on the VCR lights up. • The channel is not set to Ch 3 or Ch 4 or the video input has not been selected on the TV. • Make sure that S VIDEO connection is tight. • Clean the video head. (See page 42)
	The VCR won't record.	• No cassette has been inserted. • The cassette inserted is at its end. • Remove the S VIDEO connecting cable from the S VIDEO IN when the cable is not used.
	The playback picture is not clear.	• The channel for the VCR is not correctly tuned on the TV. • The video heads are dirty. Clean the heads using the Sony V8-25CLH Video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. If the cleaning cassette is not available in your area, have the heads cleaned at your nearest Sony Service Center facility. (Do not use a commercially available wet-typed cleaning cassette. It may damage the video heads.) • The video heads are worn out.
	Noisy picture	• Place the VCR away from a TV. • The tape is defective. Use a new cassette.
	The picture moves vertically during picture search mode.	• Adjust the vertical hold control on the TV or color monitor.
	The sound drops out.	• The cassette is defective. Use a new video cassette.
	The cassette is ejected if ● REC is pressed.	• Check the safety tab.
Others	A cassette cannot be inserted.	• Another cassette has already been inserted.
	The Remote Commander cannot be operated.	• The batteries are exhausted. • Set the COMMAND MODE switch on the VCR to 2.
	The VCR does not respond even though you press any button.	• The built-in microprocessor may be defective. Pressing CL (clear) on the rear panel with a pointed object such as a ballpoint pen, may fix the problem.
	You cannot control this VCR from the other VCR during synchronized editing	• Set the LANC mode of the other VCR to M. (See page 31). • Set the LANC mode of this VCR to S.(See page 31).

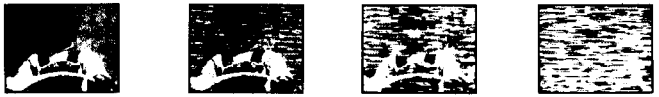
Taking Care of Your EV-C100

Video Head Cleaning

When playback pictures are noisy and hardly visible, or no picture or a black and white picture appears, the video heads may be contaminated. Clean the video heads using video head cleaning tape V8-25CLH (not supplied) or ask Sony service personnel to clean the video heads.

Symptoms caused by contaminated video heads

Normal picture • Rough picture • Unclear picture • No picture



Initial → Terminal

Worn Video Heads

If the VCR displays a poor picture after you clean the video heads, you may need to replace them. Consult your dealer or the Sony Service Center nearest you.

Check the Video Heads after 1,000 Hours of Use

This VCR is a high-precision machine. It must record on or play back from magnetic tapes on which the image signals from the color TV or the video camcorder are recorded.
The video heads or mechanical parts for transporting the tape become contaminated or worn after extended use. You should have the VCR checked (cleaning, oiling and replacing of worn parts) after each 1,000 hours of use.

Moisture Condensation

- **Main Unit**
  Do not operate the unit right after having transported it from a cold location to a warm location or in a room where the temperature rises suddenly, because moisture may condense in the operating section of the unit. Wait for about one hour before operating the unit on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the tape may be damaged.
  Therefore remove the tape immediately when there is a possibility of moisture condensation or when no picture (or a monochrome picture) is obtained. To evaporate the moisture rapidly, leave the player turned on without a tape loaded.
- **Cassette**
  When a cassette tape is carried from a cold place to a warm place, the cassette tape may become wet. When there is any possibility of moisture condensation, eject the cassette tape and leave it outside of the compartment for about one hour.

Specifications

System

Video recording system	Rotary two-head helical scanning FM system
Audio recording	Rotary head, FM system (2 channels)
Video signal	NTSC color, EIA standards
Usable cassette	8 mm video format cassettes
Tape speed	SP: approx. 1.43 cm/sec. LP: approx. 0.72 cm/sec.
Maximum recording time	SP: 2 hours 30 minutes (with Sony P6-150)
Fast-forward and rewind time	Approx. 4.5 minutes (with Sony P6-120 cassette)
VHF/UHF output	Channel 3 or 4 (selectable) 75 ohms, unbalanced
VHF/UHF input	75 ohms, F-type connector for VHF/UHF IN

Inputs and outputs

Video input	LINE IN VIDEO (phono jack) (1)
Input signal:	1 Vp-p, 75 ohms, unbalanced, sync negative
Video output	LINE OUT VIDEO (phono jack)(1)
Output signal:	1 Vp-p, 75 ohms, unbalanced, sync negative
S VIDEO inpput	LINE IN S VIDEO (4-pin, mini-DIN)
Luminace signal:	1Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal:	0.286 Vp-p, 75 ohms, unbalanced
S VIDEO output	LINE OUT S VIDEO (4-pin, mini-DIN)
Luminance singal:	1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance signal:	0.286Vp-p, 75 ohms, unbalanced
Audio input	LINE IN AUDIO (phono jack)(2)
Input level:	-7.5 dBs
Input impedance:	more than 47 kilohms
Audio output	LINE OUT AUDIO (phono jack)(2)
Standard impedance:	-7.5 dBs at load impedance 47 kilohms
Output impedance:	less than 10 kilohms
CONTROL S IN	minijack
CONTROL L	↯ Stereo mini-mini jack

General

Power requirements	120 V AC, 60 Hz
Power consumption	12 W (max.)
Operating temperature	5°C to 40°C (41°F to 104°F)
Storage temperature	-20°C to 60°C (-4°F to +140°F)
Dimensions	Approx. 225 x 75 x 252 mm (w/h/d) (Approx. 8 7/8 x 3 x 10 inch)
Weight	Approx. 2.1 kg (4 lb 10 oz)

Remote Commander RMT-V124B

Remote control system	Infrared control
Command mode	VTR2
Power requirements	3V DC 2 size AA batteries (IEC designation R6)

Supplied accessories

See page 5.

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Sony Corporation Printed in Japan

If you have any questions about this product, call:
Sony Customer Information Center
East Coast : 201-930-7669 (Sony) NJ
Central : 708-250-7669 (Sony) IL
West Coast : 714-821-7669 (Sony) CA

or write to:
Sony Customer Information Center
Sony Drive, Mail Drop #T1-11,
Park Ridge, NJ 07656

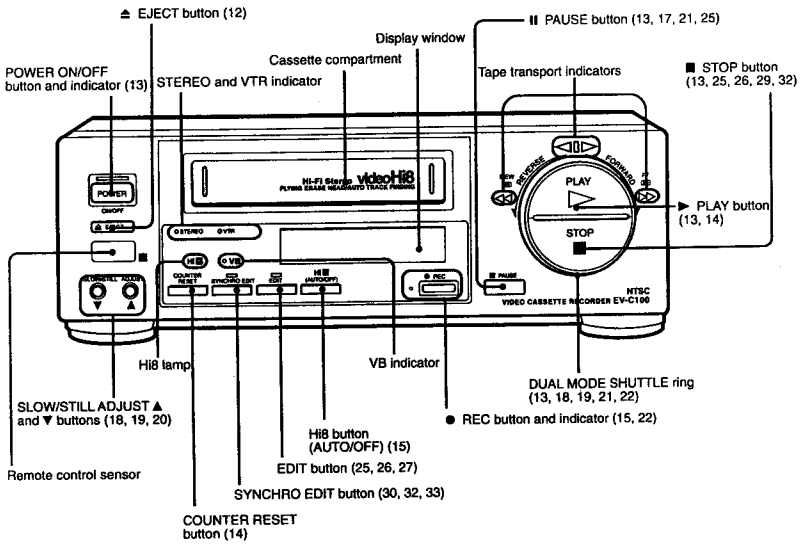
SECTION 2
GENERAL

This section is extracted from instruction manual.

Identifying the Parts and Controls

Front Panel

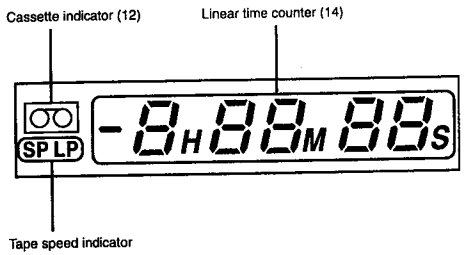
The function of each control is explained on the page indicated in parentheses ( ).


⏏ EJECT button (12)
Display window
II PAUSE button (13, 17, 21, 25)
POWER ON/OFF button and indicator (13)
STEREO and VTR indicator
Cassette compartment
Tape transport indicators
■ STOP button (13, 25, 26, 29, 32)
PLAY
STOP
▶ PLAY button (13, 14)
Hi8 lamp
VB indicator
SLOW/STILL ADJUST ▲ and ▼ buttons (18, 19, 20)
DUAL MODE SHUTTLE ring (13, 18, 19, 21, 22)
● REC button and indicator (15, 22)
Hi8 button (AUTO/OFF) (15)
EDIT button (25, 26, 27)
Remote control sensor
SYNCHRO EDIT button (30, 32, 33)
COUNTER RESET button (14)

◁◁	Rewind	▷▷	Fast forward
◁ II	Play pause (reverse)	II ▷	Play pause (forward)
◁◁ ▷	Picture search (reverse) Locked picture search (reverse)	▷ ▷▷	Picture search (forward) Locked picture search (forward)
◁	x 2 (double speed) playback (reverse) Play (reverse) Slow motion play (revrse)	▷	x 2 (double speed) playback (forward) Play (forward) Slow motion play (forward)
◁ II –	Frame-by-frame picture (reverse)	– II ▷	Frame-by-frame picture (forward)
◁◁ ▷ –	Auto play	Indicator lit	Recording

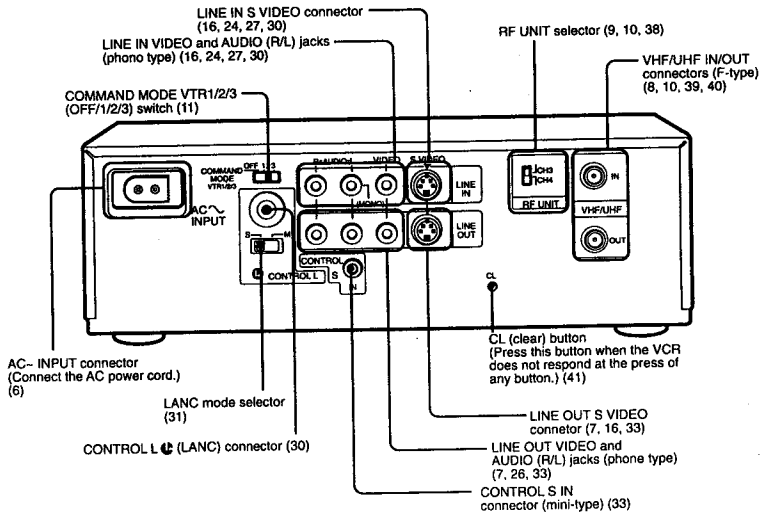
Display Window

Each indicator is explained on the page indicated in parentheses ( ).



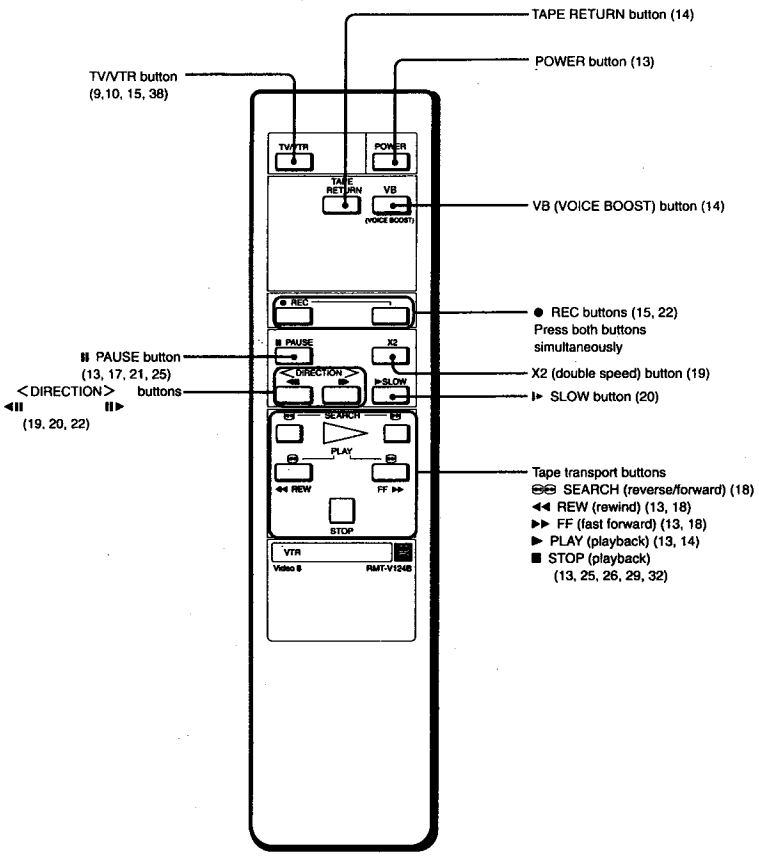
Rear Panel

The function of each control is explained on the page indicated in parentheses ( ).


LINE IN S VIDEO connector (16, 24, 27, 30)
LINE IN VIDEO and AUDIO (R/L) jacks (phono type) (16, 24, 27, 30)
COMMAND MODE VTR1/2/3 (OFF/1/2/3) switch (11)
RF UNIT selector (9, 10, 38)
VHF/UHF IN/OUT connectors (F-type) (8, 10, 39, 40)
AC~ INPUT connector (Connect the AC power cord.) (6)
LANC mode selector (31)
CONTROL L (LANC) connector (30)
CL (clear) button (Press this button when the VCR does not respond at the press of any button.) (41)
LINE OUT S VIDEO connetor (7, 16, 33)
LINE OUT VIDEO and AUDIO (R/L) jacks (phone type) (7, 26, 33)
CONTROL S IN connector (mini-type) (33)

Remote Commander

The function of each control is explained on the page indicated in parentheses ( ).



Features

High quality picture and sound

- **Hi8 video system**
  The Hi8 video format features 400 lines of horizontal resolution, giving you a high video quality.
- **AFM Hi-Fi stereo**
  You can record Hi-Fi sound with a live stereo sound atmosphere.

Editing

- **DUAL MODE SHUTTLE ring**
  Allows quick access to the desired scene and playback at various speeds in both forward and reverse directions.
- **Synchronized editing**
  Controls two VCRs (recording VCR and playback VCR) connected with either control L (LANC) or control S connection at a press of one button.
- **Control L (LANC) connector**
  Allows connection with other video equipment such as a camcorder easily.
  Furthermore, simultaneous control of both equipment is available for bi-directional synchronized editing.
- **CONTROL S INPUT connector**
  Allows remote control of this VCR by other Sony video equipment with a CONTROL S OUTPUT jack.
- **S VIDEO IN/OUT connector**
  Allows clear picture by separating color signal from luminance signal.

Function

Voice boost function
When playing back a tape recorded with a video camera recorder (camcorder), voice boost enhances the voice portion of the sound and reduces unwanted background noise like wind so that it's easier to listen to conversation.

Note

No TV or cable reception
Since no tuner is built in this VCR, you cannot record a TV or cable program through the RF (VHF/UHF IN and OUT) connection.

How to Use This Manual

This manual is divided into the following six chapters: **Chapter 1** Introduction, **Chapter 2** Preparation, **Chapter 3** Basic Operations, **Chapter 4** Advanced Operations, **Chapter 5** Editing, and **Chapter 6** Additional Information.
If you are already familiar with basic operations, skip **Chapter 3** Basic Operations and see **Chapter 4** Advanced Operations.
If you have any problems in installing or operating the EV-C100, refer to the troubleshooting section (see page 41) first before calling your local Sony dealer.

When you are reading through the manual, remember:
- Buttons and switches on the VCR to be used in operating the VCR are called out and shown in uppercase letters in the illustrations.
- Buttons and switches on the Remote Commander to be used for operating the VCR are called out and enlarged in the illustrations.

Conventions

This indicates a function operated only with the buttons on the VCR itself, but not with those on the Remote Commander.

This indicates a function operated only with the buttons on the Remote Commander, but not with those on the VCR itself.

Unpacking

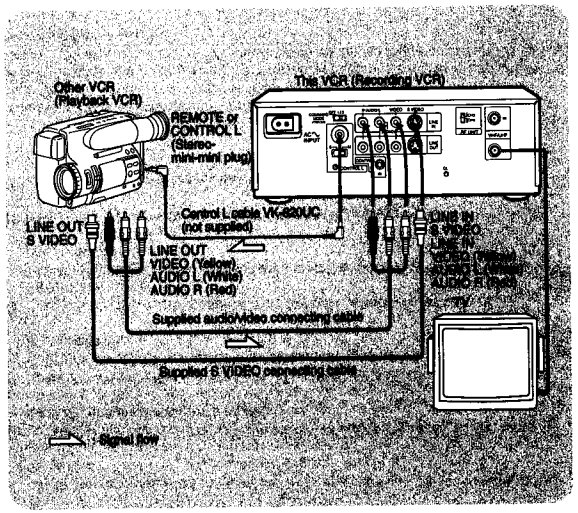
Unpack all the items and check to confirm that you have everything listed below.
- Remote Commander RMT-V124B (1)
- Size AA (R6) batteries (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)
- Audio/video connecting cable (3 phono to 3 phono) (1)
- S VIDEO connecting cable (1)

Synchronized Editing

If your other VCR has a control L (LANC) connector, you can take advantage of a feature called "Synchronized Editing" that controls both VCRs (recording VCR and playback VCR), and releases the pause when SYNCHRO EDIT is pressed. To use this function, you must connect a designated control cable (control L or S cable) in addition to the connections of the audio and video cables.

There are two types of control cables: control L (LANC) cable and control S cable depending on the type of connectors of the VCRs.

Connecting Video Equipment with the LANC Connector


Other VCR (Playback VCR)
This VCR (Recording VCR)
REMOTE or CONTROL L (Stereo-mini-mini plug)
Control L cable VW-520UC (not supplied)
LINE OUT S VIDEO
LINE OUT VIDEO (Yellow) AUDIO L (White) AUDIO R (Red)
Supplied audio/video connecting cable
Supplied S VIDEO connecting cable
Signal flow

Notes

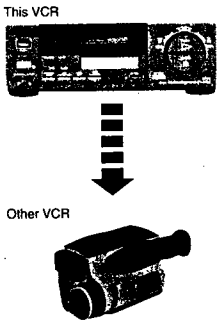
- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may casue a humming noise.
- If your playback VCR is a monaural unit, connect the white plug to LINE IN AUDIO L on this VCR and leave the red plug unplugged. This lets you record the sound of the play back VCR on both channels of this VCR,donot connect the white plug to LINE IN AUDIO R.
- If the other VCR has a LANC connector and a CONTROL S connector, use the LANC connector. Do not make the LANC and CONTROL S connections simultaneously.
- If your playback VCR is equipped with the S VIDEO output connector, you can use the S VIDEO connecting cable (supplied) to connect to the LINE IN S VIDEO connector on the VCR. This connection gives you a higher quality picture than using hte video cable.
- When you use the LINE IN VIDEO jack and LINE IN S VIDEO connector at the same time, the LINE IN S VIDEO connector has priority.

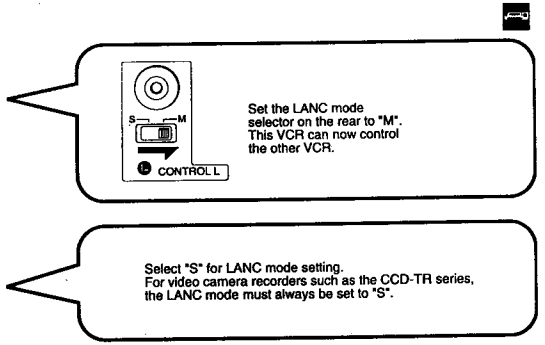
About the (LANC)
LANC stands for Local Application Control System.
The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE on other equipment.

Setting the LANC Mode

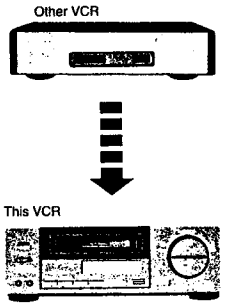
When you perform synchronized editing using the control L (LANC) cable, remember to set the LANC mode as described below:
Be sure this setting is correct before you begin editing, since it decides which VCR controls which.

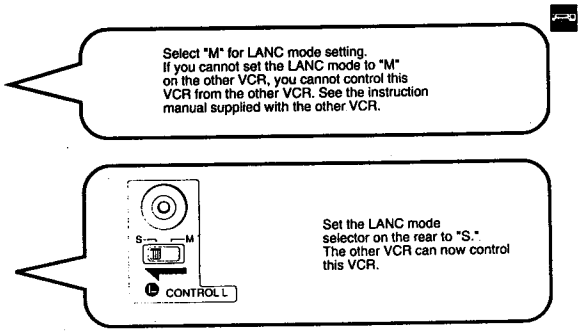
When you want to *control the other VCR* from this VCR




S
M
CONTROL L
Set the LANC mode selector on the rear to "M". This VCR can now control the other VCR.
Select "S" for LANC mode setting. For video camera recorders such as the CCD-TR series, the LANC mode must always be set to "S".

When you want to *control this VCR* from the other VCR



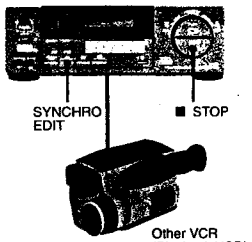

Select "M" for LANC mode setting. If you cannot set the LANC mode to "M" on the other VCR, you cannot control this VCR from the other VCR. See the instruction manual supplied with the other VCR.
S
M
CONTROL L
Set the LANC mode selector on the rear to "S." The other VCR can now control this VCR.

Note
Do not make the CONTROL L connection between this VCR and the other VCR with the LANC mode settings of both VCRs set to the same position.

Synchronized Assemble Editing

Before You Begin

This VCR
(Recording VCR)



- Check the LANC mode setting (see page 31).

Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Locate the recording start point on this VCR and put this VCR in recording pause mode.

3 Locate the beginning of the scene to be edited out on the other VCR and put the other VCR in playback pause mode.

4 Press SYNCHRO EDIT on this VCR. The SYNCHRO EDIT indicator lights up. Pause mode of both the recording VCR and the playback VCR is released to start editing.

5 Press SYNCHRO EDIT on this VCR at the point where you want to stop recording.
This VCR enters recording pause mode, and the other VCR enters playback pause mode.

6 If you have another scene you want to edit, repeat steps 3 to 5.

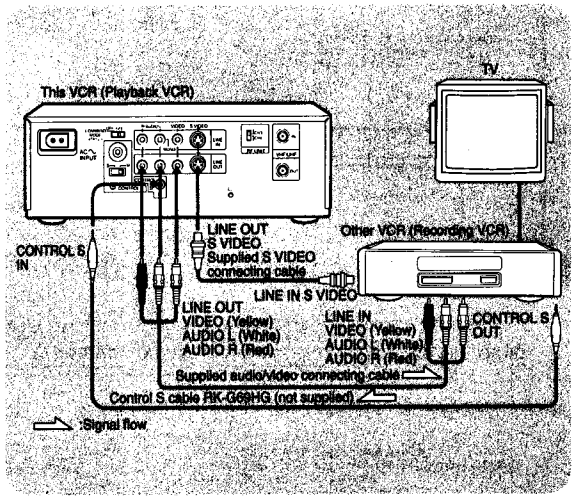
7 After editing has been completed, press ■ STOP on both VCRs.

To make use of the linear counter "0H00M00S"(zero) for synchronized editing
You can perform synchronized insert editing only when this VCR is used as the recording VCR and the LANC mode is set to "M."
When the linear counter on this (recording) VCR becomes zero during synchronized editing, the other (playback) VCR enters playback pause mode and this VCR enters recording pause mode.

See the instructions on page 29 for operation.
Follow the operation procedures **1**, **2** and **3** on page 29.
To start editing, press SYNCHRO EDIT on this VCR.
When the linear counter becomes zero, the other VCR enters playback pause mode and this VCR enters recording pause mode.

During synchronized editing
- The EDIT function is activated automatically.
- If the linear counter becomes zero, syncronized editing stop.
- The COUNTER RESET button cannot function.

Connecting Video Equipment with the CONTROL S Connector


This VCR (Playback VCR)
TV
CONTROL S IN
LINE OUT S VIDEO
Supplied S VIDEO connecting cable
Other VCR (Recording VCR)
LINE IN S VIDEO
LINE OUT VIDEO (Yellow) AUDIO L (White) AUDIO R (Red)
LINE IN VIDEO (Yellow) AUDIO L (White) AUDIO R (Red)
CONTROL S OUT
Supplied audio/video connecting cable
Control S cable RK-G69HG (not supplied)
: Signal flow

When using the CONTROL S cable
The synchronized editing using the CONTROL S connector is the same as the synchronized editing using the LANC connector. This enables you to pause both VCRs and release pause mode of both VCRs.
You can only perform synchronized editing using the CONTROL S IN connector when the other VCR has the CONTROL S OUT connector.
Set the Command Mode of the other VCR to VTR2.
Press SYNCHRO EDIT on the other VCR having the CONTROL S OUT connector.

Notes
- When connecting two VCRs, do not connect them so that both VCRs are used as a recording VCR and a playback VCR simultaneously. Doing so may cause a humming noise.
- If your recording VCR is a monaural unit, make connections using the VMC-910HG/920HG cable (not supplied).
- If your recording VCR is equipped with the S VIDEO input connector, you can use the S VIDEO connecting cable (supplied) to connect to the LINE OUT S VIDEO connector on the VCR.

Technical Information

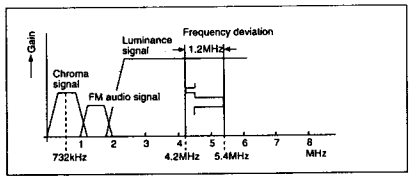
Hi8 (High Eight) Video System

The 8mm video system employs a metal powder tape. This means the video recorder (enhances picture quality) is capable of recording a large amount of information (enhances picture quality). The Hi8 video sytem was developed utilizing the advantages of the 8mm video system. (See the diagrams below.) The main characteristics of the Hi8 video system are as follows:

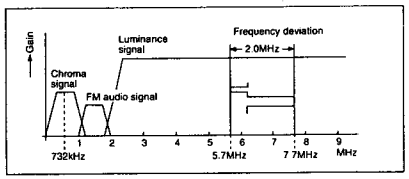
Characteristics of Hi8 System

- **Super high quality picture**
  The information capacity, a key element for picture imporvement is increased by shifting up the FM carrier frequency range. In the Hi8 video system, the FM carrier frequency range of the luminance signal has been shifted up to 5.7-7.7 MHz. This is higher than the 4.2-5.4 MHz range of the standard 8mm video system. Consequently, the horizontal resolution is improved to 400 lines.

Frequency allocation of the standard 8mm video system



Frequency allocation of the Hi8 video system



- **Use of high grade tape to match the Hi8 video system**
  Metal tape for the Hi8 video system is ideal because it has greater magnetism which permits high-density recording. The Hi8 VCR uses such high-grade tapes for the Hi8 video system, covering a wide frequency range, to achieve a high-quality video signal for recording/ playback.

- **S VIDEO (separate luminance/chroma signal) input/output connectors**
  Conventionally, the video signal exchanged between the TV set and video equipment or among several video devices is called a composite video signal, in which the luminance (Y) and chroma (C) signals are mixed. In this system the composite video signal is liable to produce interference, resulting in a reduction picture quality. To avoid this quality reduction, an S VIDEO connector is used to transmit and receive the video signal sepearated into the luminance signal and the chroma signal. With the sepearated video signal, flicker and color blur in the picture are minimized and sharpness is enhanced to such an extent that hair and fine stripes are clearly visible. The S VIDEO connector also assures excellent editing quality with a minimum loss of picyture quality.

- **Tape speed**
  The Hi8 video systme uses the same tape speed as the standard 8mm video system. An E6-120 (or P6-120) allows four hours of playback in LP mode.

Recording and Playback in the Hi8 Video System

To take advantage of the EV-C100 Hi8 video system, you must use Hi8 video tapes for recording and playback.

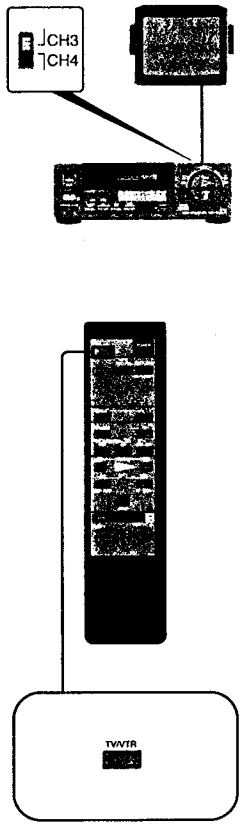
You can use the EV-C100 to record and playback standard 8mm video tapes if Hi8 quality is not necessary. (The Video 8 and standard 8mm systems are often reffered to as "normal " mode.)
The EV-C100 automatically detects the type of video system (standard or Hi8) in which the tape was recorded and plays the tape back accordingly.

To make the most of the Hi8 video system, select the Hi8 setting with the Hi8 (AUTO/OFF) button to AUTO. In this way, EV-C100 records in the Hi8 video system. (See page 15).

Compativility with conventional video recorder decks

Tapes recorded using the Hi8 video system cannot be Played back on conventional 8mm video equipment (standard 8mm video system).

General Setup Information



Setting the RF UNIT Selector

If you connect a TV or color monitor equipped with A/V input jacks, skip this adjustment.

Why this setting is necessary:
You must set the RF UNIT selector at the rear of the VCR properly so that your TV can receive the correct signal from the VCR. Set the selector to CH3 (Channel 3) or CH4 (Channel 4), whichever is not used in your area.

1 Set the RF UNIT selector at the rear of the VCR to CH3 or CH4, whichever is not used in your area.

2 Press POWER.
The power indicator on the front panel lights up.

3 Press TV/VTR on the Remote Commander.
The VTR indicator on the VCR lights up.

4 Turn on your TV and set it to the channel selected in step 1.
Your TV is now tuned to the VCR. Whenever you use the VCR, set the TV to the selected channel.

Note:
For details on adjusting TV channels, see your TV instruction manual.